

Multi Project Management in the Utility Sector

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Abstract: The article “Multi-project Management in the utility sector“ describes the structure and functions of multi-project management in general and a concept of the structure for the utility company in special.

Furthermore a description of the implementation of a successful multi-project management system will be provided.

After an introduction, the terms and definitions as well as the benefits will be explained. The article is structured in the dimensions “methods and processes”, “organization”, “people” and “IT” as well as the link to the company strategy. The tasks and main characteristics will be described and an application in the utility sector will be shown. The article will close with the implementation of multi-project management within a company.

1 Introduction

Based on the changing environment and the flexibility in the utility sector a new organizational working approach is becoming more and more important.

Project management is a critical success factor for utility companies in the last years (cf. [1]). The competence to organise and manage important and temporary endeavour as a project increases the quality of deliverables as well as the motivation of the employees. This leads to an increase of efficiency of the whole company.

Apart from the single project management (SPM) the Multi-Project Management (MPM) approach is playing an important role. The main goal of the Multi-project Management is it to start the right project at the right time and to avoid resource conflicts.

But the introduction of project management (Single-project Management and/or Multi-project Management) leads to organisational changes and therefore to fears and reluctance of the employee side. Therefore a professional change management is crucial for success.

Many companies have put a lot of effort in the development of the Single-project Management. In most cases the successes of the projects regarding scope, time, and budget have increased. But there is still a lack of potential, which is not exploited (cf. [2]).

The goal of the Single-project Management is the improvement of cost, time and quality of a single project. The goal of the Multi-project Management is improvement of the economic and strategic company situation as such.

2 Status quo and the relevance of Multi-project Management

In 2008 a research of the IDC, in which companies of different branches were questioned regarding their experience about the implementation of Multi-project Management has shown a positive impact of project portfolio management (cf. [3]):

- The number of project which were performed simultaneously increased by 25%
- At the same time the cost decreased by 37% at an average
- The amount of failed projects dropped by 59%
- Redundant projects could be fostered by 78%
- Only half of the project overextended the budget in comparison to before using Multi-project Management solutions
- The quality of the work performance increased and for the execution of project averagely one third less time was needed.

An additional research of the Technical University of Munich from the year 2007 verifies that many companies are aware of the benefit of project portfolio management but hesitate to implement project portfolio management (cf. [4]).

- 45% of the top managers know about the strong impact of project portfolio management on the business success but...
 - o Only 12% of the companies execute the right amount of projects
 - o Only 19% of the companies stop unnecessary project consequently
 - o Only 23% of the companies split the resources in line with the strategy
 - o 32% complain about double work effort

3 Defining the terms Multi-project Management, Program Management, and Project Portfolio Management

The definitions and terms of Multi-project Management are actually not applied in a consistent way in theory and praxis. Therefore a brief overview and definition of the main terms is required and shown in this chapter:

In order to delimit the different terms the following chart delivers an overview.

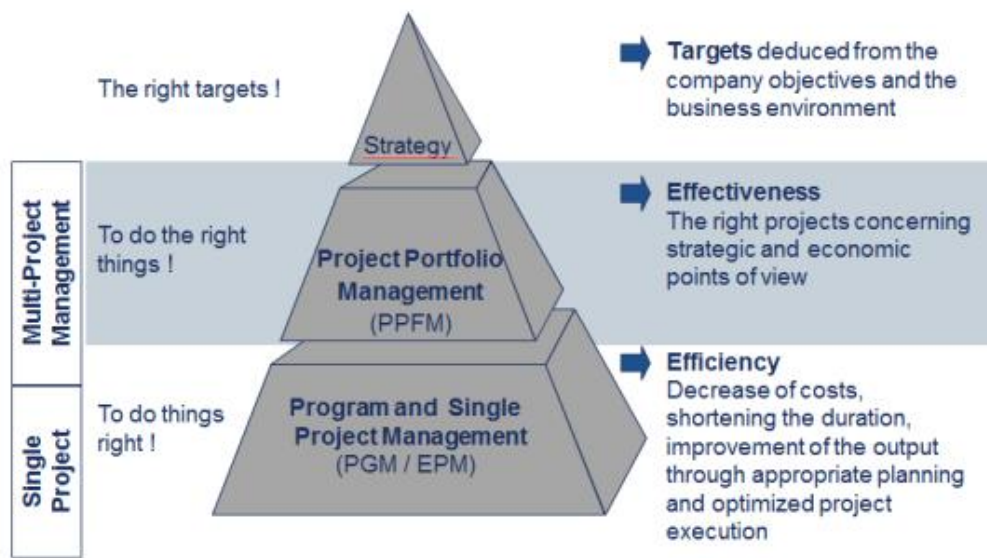


Figure 1: Definition of Terms

Concerning DIN 69901-5-2009 **Multi-project management (MPM)** is the organizational frame for conduction of a variety of single projects. The co-ordination of the resources for these projects is part the Multi-project Management. (cf. [5]).

The Multi-project Management consists of a project portfolio management as well as the whole project management system incl. processes, standards, key performance indicators, templates, rules, IT solutions, competence development, etc. (cf. [6], p. 58 ff.).

A bundle of projects with the same goal is called a **Program**. **Program Management** is the planning and controlling across of a bundle of projects with the same goal. (cf. [6], p. 22 ff).

Project portfolio management is the permanent planning, prioritizing and controlling of a variety of independent projects of one unit and/or the whole company (cf. [6], p. 23).

The main tasks of the project portfolio management are the planning and controlling of the project portfolio, with the following activities:

- Defining and prioritizing of projects and programs to realize higher organizational or company goals
- Evaluation of requested projects
- Permission, postponement, and rejection of project requests and change requests of running projects
- Continuously supervision of running projects (project progress, budget, risks, resources, and dates) in the company view
- Solutions for conflicts in several projects regarding targets, dates, resources, and budget

4 Comprehensive Multi-Project Management Approach

For a goal oriented and successful Multi-project Management it is crucial to have an integrated and comprehensive approach with the dimension

- People
- Methods and Processes
- Organization and

- IT.

It is important to know that Multi-project Management is not a static organizational structure but a dynamic approach with continuous improvements.

These dimensions are the “adjusting screws“ which you have to screw in order to implement a successful Multi-project Management.

Apart from these four dimensions, the consideration and the linkage to the company strategy is crucial as the strategy has a direct influence to the project portfolio and therefore to the selection of projects.

4.1 Dimensions Processes and Methods

The basis for Multi-project Management solutions is a standard project portfolio management process. Due to the company specific extension and integration of these processes in the existing processes variety, the methods, the organization, the IT, and the requirements on the performing people are worked out.

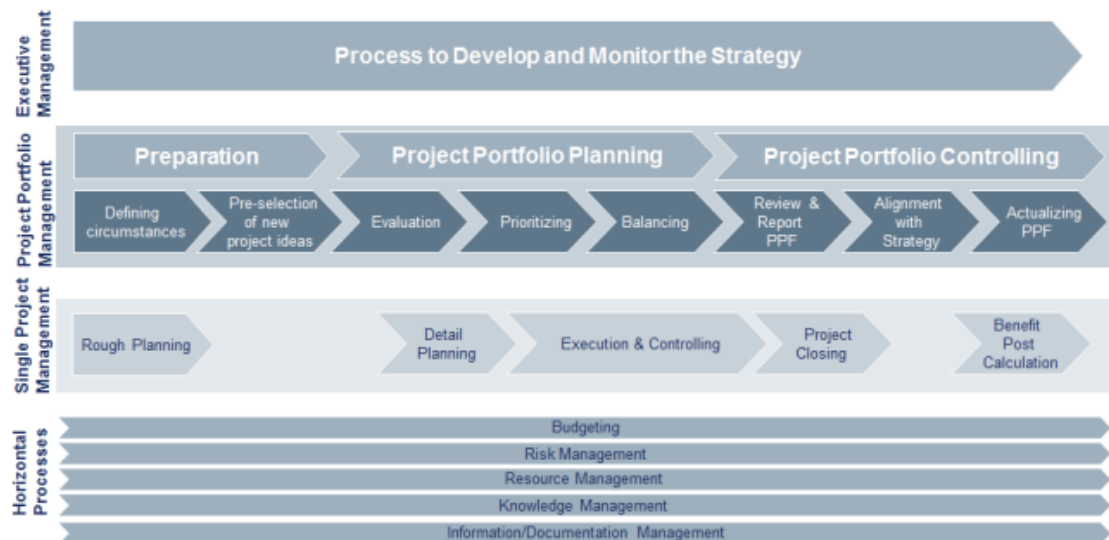


Figure 2: Standard Process of Project Portfolio Management

The project portfolio management process has to be involved in the business processes of the company. The following business processes have to be considered:

- Budgeting (annual planning, accounting, controlling, forecasting)
- Risk management (risk consolidation, risk communication, allowance)
- Resource management (capacity planning, personnel development, connection to work council, working times, incentive systems)
- Knowledge management (securing of experience)
- Information management (regulations for documentation, labelling, archiving)

4.2 Dimension Organization

For the project portfolio management a permanent organizational unit has to be set up in the company. In general this organizational unit is called the Project Management Office (PMO). This PMO is reporting to the portfolio steering committee (decision-making authority) and usually has besides the portfolio planning and controlling the following two main tasks:

As PM competence centre it is responsible for the permanently development of PM methods and the PM organization. The PM competence centre serves as a company internal know how centre for project management and exists as executive department of employees with expert knowledge about project management.

As PM service centre it is both responsible for the operative support of the complete PM organization for the application of PM methods and their tools in the form of trainings and coaching as well as being a technical contact person for PM methods/tools.

For hierarchical project portfolios several PMOs with defined decision authority are established. The tasks, competencies and responsibilities of the PMOs distinguish regarding the hierarchical level and/or the centrality (central vs. decentral). The highest / central level can be seen as strategy and structure defining entity for the project management. Most the time the decentral PMOs are focusing on the support of programs and projects with PM resources as well as templates, process descriptions. The following figure shows an example of the construction of a power plant.

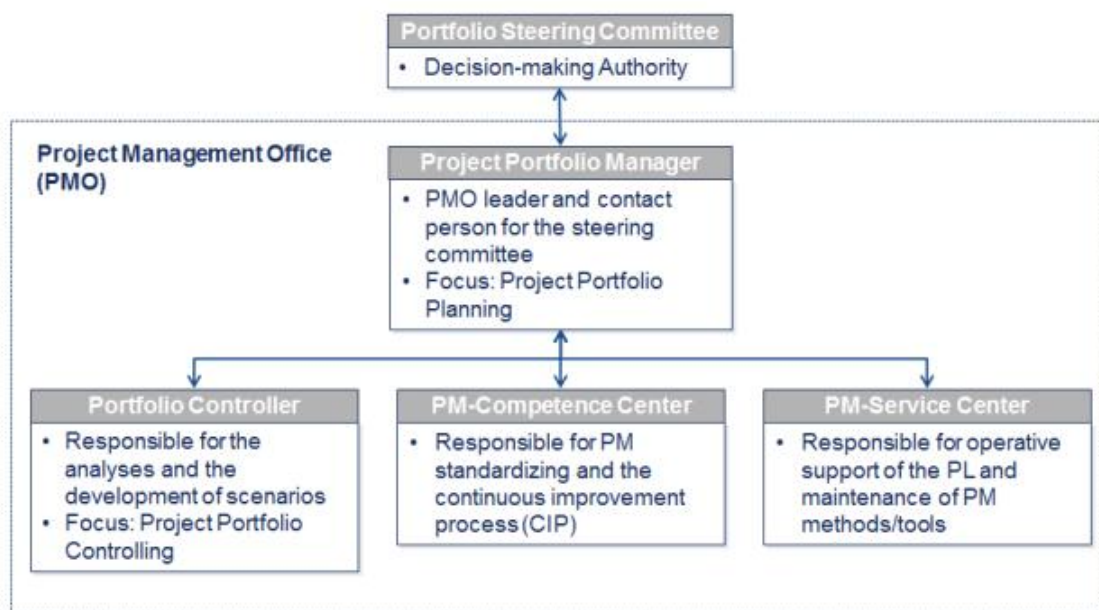


Figure 3: Structure of a Project Management Office

4.3 Dimension People

In order to get qualified and motivated employees for the tasks and functions of project portfolio management, these functions have to be designed attractively. This can be achieved by realizing the following steps:

- Accordingly high organizational mounting of the project portfolio organization,

- To embed the roles of project portfolio management in the career model of the company,
- To offer training opportunities,
- To define opportunities for development both in the direction of line responsibility as well as in the project leading, and
- To define authorities and scope for action.

The project portfolio manager is a “sparring partner“ for the management regarding the planning and controlling of the project portfolio as well he is in a frequent agreement with the line managers and project leaders. This requires an appropriate standing in the company and a wide range of experience background of the project portfolio manager.

4.4 Dimension Software

The last but most necessary step to guarantee the sustainability of the solutions is to integrate a software solution for the project portfolio management in the existing IT landscape. After the processes, the methods, the organizational implementation, and the qualification of the participants (potential users of the IT solutions) are defined, the appropriate IT solution will be designed and implemented based on these requirements. Respectively to these requirements unique software solutions can be designed or a on the market existing one can be implemented.

The granularity and distinctness of several functional modules varies to each segment. In general for each software designing it has to be defined if the single project management and the multi-project management are to be administered together in one system environment or not.

The advantages and disadvantages of both architecture approaches have to be weighed against each other.

5 Application of Multi-project Management in the utility sector

This chapter shows the particularities of project management in the utility area. Furthermore the benefit of Multi-project Management will be derived.

Based on the three types of projects (customer projects, internal projects, Research and Development projects (R&D)), there are mainly for the customer projects segment specific differences.

These differences are also existing in the dimension „People“, „Methods and Processes“, „Organisation“, and „IT“.

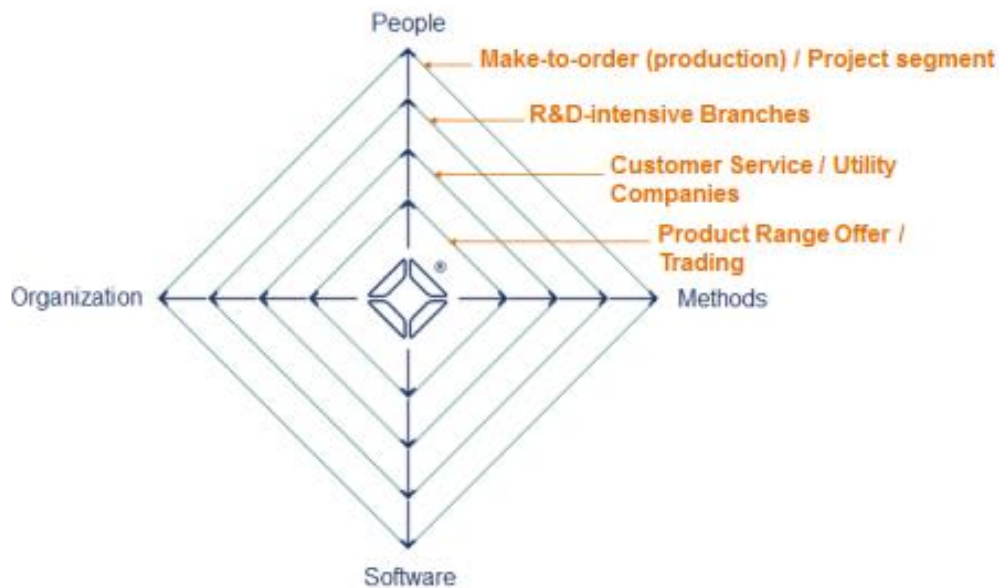


Figure 4: Project Competences in different Branches regarding the four Dimensions People, Organization, Methods, and Software

The main tasks of companies within the utility sector are the generation, the distribution, and the trade of energy. Thereof the generation and distribution have the biggest part of the value chain. These part of the value chain are characterized by big projects of construction, maintenance, and deconstruction of power plants.

Therefore the utility company, particularly energy suppliers, are in the area construction / Project business. Thus they are at the most complex level of project management. The high demands on project management are in the area of Single-project Management and Multi-project Management.

The client projects in the utility sector can be categorized in new construction projects (categorized regarding technology, e.g. gas, coal, renewable energy forms (wind energy, photovoltaic, and biomass)) and according to the contract type (plumb projects or general contractor projects), asset projects, grid projects IT / TC – incl. Smart Metering and Smart Grids.

- New construction projects
 - o Technology
 - (a) gas,
 - (b) coal,
 - (c) renewable energy forms
 - (i) wind energy
 - (ii) photovoltaic
 - (iii) biomass
- Contract type
 - o Plumb projects
 - o General contractor projects

- Asset projects
- Grid projects IT / TC
 - o Smart Metering
 - o Smart Grid

The largest amount of projects is technological and required by law (so called must-projects).

In the development of project portfolio in several big energy suppliers which are operating internationally, a hierarchy project portfolio structure was evolved which is based on the organizational structure, e.g. power plants – business unit – mother company.

The typical characteristics which gain importance through the above described project management with its four dimensions, of energy suppliers are:

- Each major project needs a type of project portfolio management
- A very long project duration and a very high volume (several years and billion Euros of budget) and therefore a very big project team
- Several sub-suppliers which have to be coordinated
- Order-related single production/manufacturing
- Individual project closings
- High share of project dependent costs and services

The essential success factors for the project business in this branch are planning security - due to extreme high investments, project management as elementary core competency, excellent project controlling, elaborated risk management, claim- and contract management without any leaks, as well as a project oriented organization, structure, culture, and processes.

Under consideration of the above mentioned features of energy utility companies the project portfolio management is able to provide the following points:

- Through clearly defined strategic and economic defaults concerning Bid-No-Bid decisions and the following contract signing the composition of the project portfolio will be optimized sustainably.
- Through a demand-capacity alignment it is secured that the necessary resources for the project are available and therefore the project is executed within the budget and time frame.
- A standardized project portfolio controlling guarantees that changes are recognized premature and actions are initiated.
- The gained transparency in the planning and controlling about the project portfolio protects the usage of existing synergy potentials.

This leads to a lasting increase in the turnover, decreasing costs, shorter cycle times and improved liquidity.

To successfully implement a project portfolio management in energy utility companies and to permute the above mentioned success factors, in the following chapter a successfully applied approach is described.

6 Concept of the implementation of Multi-project Management

In order to secure a successful implementation of Multi-project Management, you have to set-up a strategic project with clear phases and milestones. At the end of each phase there are well defined objectives and deliverables and there should be a freedom of decision, whether and how the next phase will be designed. Thus, there is at each step in the project the guarantee

concerning transparency and a check point for the actual requirements of the company (cf. [7]).

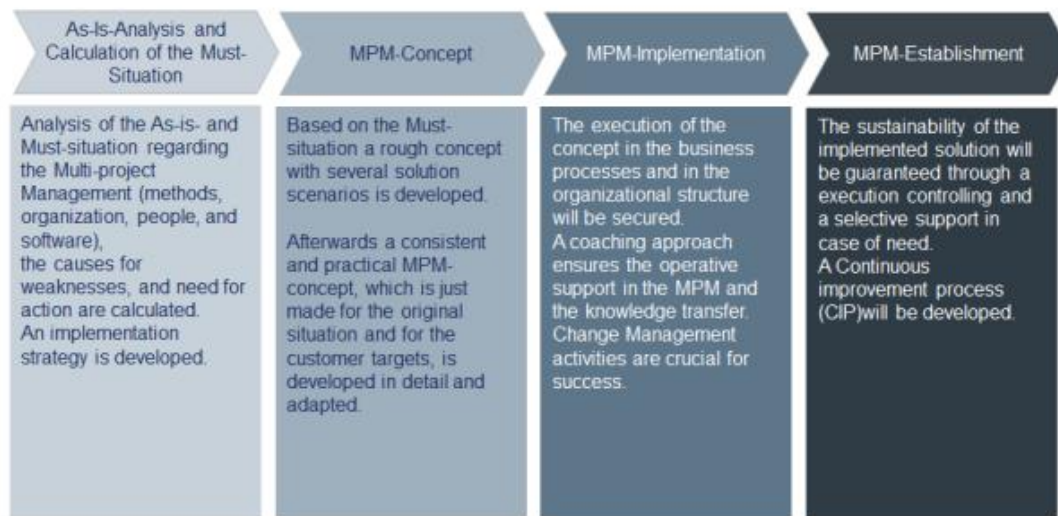


Figure 5: Process to Implement and Establish Multi-project Management

7 Results and Conclusion

It is demonstrated that companies which apply project portfolio management gain higher profits from their project investments and secure through the controlling that their projects contribute a specific part to achieve the company targets.

The essential benefit of project portfolio management is the creation of transparency in the choice of the optimal project mixture in connection to the contribution to the company targets and the strategic requirements. Furthermore synergies between projects will become transparent and are able to be used which lead to a higher productivity of used resources in most cases. The improvement of the project results (adherence to time and cost limits and results) through a consistent risk management and a prompt reporting can be achieved as well.

Especially in the project intense energy branch project portfolio management is able to contribute a valuable contribution to achieve more effectively the strategic targets and the project targets. Thereby the following success factors should be considered:

- Establish the topic in the top management level (e.g. establishment of the steering committee)
- Implementation of a project portfolio management as an own project
- A professional stakeholder management (integration of relevant stakeholders)
- Internal communication suitable for the target group
- Client specific and regarding the starting situation and objectives development of an appropriate solution
- Realization of quick-wins to quickly prove the feasibility and the benefits of the targeted solution
- Measurement of the sustainable success of the project portfolio management
- Holistic balanced project portfolio management solution
 - o Integrated project portfolio management processes in the existing business

- processes
 - Established project portfolio management organization
 - Qualified and motivated PMO team members
 - Efficient and “relieving” IT solution
- Strong connection to the company strategy

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